REMARKS/ARGUMENTS

Claims 1-38 are pending and remain in this application. Claims 1-8, 10, 11 and 31-38 are rejected. Claims 9 and 12-30 are objected to. Herein, Claims 1 and 32 have been amended. Reconsideration is respectfully requested.

Claims 1 and 32 have been amended to more clearly express an inventive feature of the present invention that exists as previously recited in Claims 1 and 32. In addition, the amendment of Claims 1 and 32 is intended to further clarify a novel and non-obvious difference between the instant invention and the prior art cited by the Examiner. An explanation of the amendment to Claims 1 and 32 is provided below. No new matter is added.

The Examiner rejected Claims 1-7, 10-11, and 32-36 under 35 U.S.C. 102(b) as being anticipated by Booth et al. (USP 5,922,079). Regarding Claim 1, the Examiner contended that Booth et al. teach an automated analysis and troubleshooting system that identifies potential problems with a test suite and also identifies probable modeling errors based on incorrect diagnoses. Furthermore, the Examiner contended that Booth et al. disclose a method comprising evaluating a diagnostic efficacy of the test suite using a probability of a diagnosis. In support of the contentions, the Examiner pointed to col. 5, lines 35-40, and col. 11, lines 24-64, of Booth et al., USP 5,922,079.

Applicant respectfully disagrees with the Examiner's contentions regarding the teachings of Booth et al. Booth et al. disclose an automated analysis of a model-based diagnostic system. The automated analysis includes a detectability analysis having a first stage that flags components and subcomponents with no coverage in the test suite (col. 7, lines 31-33) and a second stage that either assigns a numerical value to components having inadequate coverage or simply flags such components (col. 7, lines 42-45). Detectability, according to Booth et al., is essentially an examination of test coverages of individual tests in a test suite with a focus on finding components of the unit under test having poor coverage.

The automated analysis of Booth et al. further includes diagnosability. Booth et al. define diagnosability as the ability to uniquely identify faulty components within a larger set of candidates (col. 7, lines 65-67). Specifically, Booth et al. disclose diagnosability as the ability to discriminate between components (col. 8, lines 9-12).

As such, diagnosability is nothing more than a further examination of test coverages in an attempt to find components with overlapping coverages that yield an inability to distinguish failures in the components.

The automated analysis also provides a means for debugging the model based on incorrect diagnoses (col. 9, lines 33-37). The 'model' includes information on tests including test coverages and information regarding the unit or device under test (UUT or DUT) (col. 6, lines 38-41). Booth et al. explain that debugging involves modifying operation violation penalties used in setting diagnoses weights. Modifying is used to move a given diagnosis up or down in a list of possible diagnoses (col. 10, line 66 to col. 11, line 23). The operation violations may employ data including a failure probability for one or more components in the DUT. The goal of moving candidate diagnoses up or down in the list is to insure that a highest weighted candidate diagnosis is the true failure cause (TFC) (col. 9, lines 41-45).

Booth et al. fail to disclose or suggest using a probability of one or both of a correct diagnosis and an incorrect diagnosis by the test suite to analyze and/or evaluate an efficacy of the diagnostic system. Moreover, Booth et al. fail to disclose or suggest any means by which such a probability might be generated or determined. Instead, at col. 11, lines 24-64 (relied on by the Examiner), Booth et al. disclose that "possible changes to prior failure probabilities should also be identified for consideration by a test programmer" and that the prior failure probabilities are generally based on ***historical failure rates*** or subjective probabilities" (col. 11, lines 24-27). (Emphasis is added for the Examiner's convenience.) Further, Booth et al. recommend against altering prior failure probabilities to correct a single diagnosis but allow for the debugging system to suggest such possibilities when considering a large number of coverages (col. 11, lines 27-35). Therefore, it would be readily evident to one skilled in the art that the 'probabilities' referred to in the above referenced sections of Booth et al. are probabilities associated with component failures and ***not*** probabilities of either or both correct and incorrect diagnoses by the test suite.

In particular, probabilities of correct and/or incorrect diagnoses are generally determined from a large number of applications of the test suite to DUTs exhibiting various types of failures and cannot be determined from a "single diagnosis". Booth et al. never mention collecting information from multiple applications. As such,

Booth et al. simply do not disclose or suggest determining or using such probabilities of correct and/or incorrect diagnoses.

Moreover, while Booth et al. generally disclose using various probabilities, only probabilities associated with components (e.g., component failures) are disclosed. Booth et al. are silent on any probabilities associated with particular diagnoses. For example, Booth et al. disclose a probability of failure of a particular test based on a failure probability of a particular device and the use thereof to set a weight value (col. 3, line 56 to col. 4, line 42). In another example, Booth et al. disclose using a probability of the event of all tests passing given a failure of a component to set weight values (col.4, lines 43-64). The above-referenced probabilities and others found in Booth et al. are associated with failure probabilities of components and/or a probability of detecting a particular failed component or distinguishing one failed component from another. As such, Booth et al. fail to teach or suggest, explicitly or implicitly, employing a probability of one or both of a correct diagnosis or an incorrect diagnosis by a test suite (i.e., probability of a diagnosis).

Applicant has amended Claim 1 to clarify this aspect of the invention with respect to Booth et al. Amended Claim 1 recites in part "evaluating ... using a probability of *one or both of a correct diagnosis and an incorrect diagnosis by the test suite*" instead of "... using a probability of *a diagnosis*", as originally recited in Claim 1, to clarify Applicant's original intent and meaning in original Claim 1 (emphasis added). Support for this amendment can be found at least in Applicant's specification at page 4, lines 24-27 and in Applicant's claims, especially original Claim 11.

With regard to independent Claim 11, the Examiner contends that Booth et al. teach a method of evaluating a diagnostic efficacy of a test suite using a probability of diagnosis by, among other things, determining a probability of a correct diagnosis and a probability of an incorrect diagnosis for the test suite.

Applicant respectfully disagrees with the Examiner's contention regarding the teachings of Booth et al with respect to Claim 11. Booth et al. disclose probabilities of component failure, as explained in detail above with respect to Claim 1. Booth et al. are silent on probabilities of correct and/or incorrect diagnoses for the test suite. In particular, at col. 6, lines 49-54, (relied upon by the Examiner), Booth et al. disclose

using model debugging to analyze the model for possible changes that would result in a correct diagnosis and using simulated or historical data when available. Furthermore, at col. 9, lines 33-61 (relied upon by the Examiner), Booth et al. describe the model debugging and the use of weights to adjust the order of candidate diagnoses in a list generated by the diagnostic system. However, Booth et al. do not disclose or suggest anywhere in USP 5,922,079 determining a probability associated with either a correct or an incorrect diagnosis.

For at least these reasons and the reasons set forth hereinabove with respect to Claim 1, Booth et al. neither explicitly nor implicitly disclose "determining a probability of one or both of a correct diagnosis and an incorrect diagnosis for the test suite ...", as claimed in original Claim 11.

With regard to independent Claim 32, the Examiner contends that Booth et al. teach a test system that identifies potential problems with the test suite and also identifies probable modeling errors based on incorrect diagnoses. The Examiner contends that the system disclosed by Booth et al. comprises a computer program that includes instructions that implement evaluating the test suite using a probability of a diagnosis to determine the efficacy.

Applicant respectfully disagrees with the Examiner's contention regarding the teachings of Booth et al. with respect to Claim 32. For at least the reasons set forth hereinabove with respect to Claim 1, Booth et al. neither explicitly nor implicitly disclose a system that uses one or both of a probability of a correct diagnosis and a probability of an incorrect diagnosis to determine efficacy. Applicant has amended Claim 32 similarly to Claim 1 to clarify this aspect of the present invention. Amended Claim 32 recites in part "... using a probability of *one or both of a correct diagnosis and an incorrect diagnosis by the test suite*" instead of "... using a probability of *a diagnosis*", as claimed in original Claim 32, to better clarify the original intent and meaning of that recited in independent Claim 32 (emphasis added).

In order to maintain an anticipation rejection, the "trier of fact must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference." *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ at 485 (Fed. Cir. 1984). Moreover as stated

by the Federal Circuit, "there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripts Clinic & Research Found. V. Genentech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991). In particular with respect to establishing *prima facie* anticipation, the Federal Circuit has stated that "anticipation requires the disclosure in a single prior art reference each element of the claim under consideration". *W.L. Gore & Associates v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). In addition, each element disclosed by the reference must be "arranged as in the claim". *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., supra,* at 481, 485. Furthermore, while it is permissible in some instances to rely on an inherent characteristic of a device or process to provide a minor aspect of the claimed invention, "inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient". *In re Oelrich*, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA. 1981). Moreover, "if the examination at the initial stage does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of patent". *In re Oelrich*, 977, F.2d 1443, 24 USPQ 2d 1443 (Fed. Cir. 1992).

As discussed hereinabove, Booth et al. fail to disclose determining and/or using *a probability of one or both of a correct diagnosis and an incorrect diagnosis* (emphasis added). As such, Booth et al. fail to disclose each element in the claim(s) under consideration with regards to base Claims 1, 11, and 32. Applicant respectfully submits that the Examiner has failed to establish *prima facie* anticipation by Booth et al. of Claims 1, 11, and 32. Having failed to establish *prima facie* anticipation by Booth et al., base Claims 1, 11, and 32 are allowable over Booth et al. for at least the reasons set forth hereinabove.

Rejected Claims 2-7 and 10 ultimately depend from and include all of the limitations of base Claim 1. Rejected Claims 33-36 ultimately depend from and include all of the limitations of base Claim 32. As such, Claims 2-7, 10 and Claims 33-36 are not anticipated by Booth et al. for at least the same reasons that respective base Claims 1 and 32 are not anticipated thereby. Applicant respectfully requests that

the Examiner reconsider and withdraw the rejection of Claims 1-7, 10-11, and 32-36 under 35 U.S.C. 102(b) as being anticipated by Booth et al.

Claims 8, 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Booth et al. in view of Kanevsky et al. (USP 6,167,352). Since the Examiner bases this rejection in part on a Monte Carlo simulation taught by Kanevsky et al., Applicant assumes that the Examiner intended to reject Claims 8 and 31 instead of Claims 8 and 32 under 35 U.S.C. 103(a). A Monte Carlo simulation is a subject of Applicant's Claim 31 and not base Claim 32.

Applicant respectfully disagrees with the Examiner that Claims 8 and 31 are unpatentable over Booth et al. in view of Kanevsky et al. Claim 8 ultimately depends from and includes all of the limitations of Claim 1. Claim 31 ultimately depends from and includes all of the limitations of Claim 11. As submitted above, Booth et al. fail to disclose or suggest Applicant's invention according to Claims 1 and 11. As such, for at least the reasons discussed hereinabove with respect to Claims 1 and 11, Booth et al. fail to disclose or suggest that claimed in Claims 8 and 31. Unless Kanevsky et al. disclose that which is lacking in the teachings of Booth et al., it is irrelevant what else Kanevsky et al. do teach. In particular, neither Kanevsky et al. nor Booth et al., whether considered separately or together, disclose or suggest, explicitly or implicitly, using or determining *"a probability of one or both of a correct diagnosis and an incorrect diagnosis"* (emphasis added), as recited in Claims 1 and 11 from which respective Claims 8 and 31 ultimately depend. Therefore, Booth et al. in view of Kanevsky et al. fail to render Claims 8 and 31 obvious.

Even if the Examiner did intend to reject base Claim 32 under 35 U.S.C. 103(a) as being unpatentable over Booth et al. in view of Kanevsky et al. (USP 6,167,352), Booth et al. in view of Kanevsky et al. still fail to disclose or suggest, explicitly or implicitly, using *a probability of one or both of a correct diagnosis and an incorrect diagnosis by the test suite* (emphasis added), as recited in amended Claim 32. Therefore, Booth et al. in view of Kanevsky et al. fail to render Claim 32 obvious.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a

reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest ***all*** the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991). See MPEP, Section 2142, *ESTABLISHING A PRIMA FACIE CASE OF OBVIOUSNESS.*

Since all of the claimed limitations must be taught or suggested by the prior art, *In re Royka*, 490 F.2d, 981, 180, USPQ 580 (CCPA 1974), and all words in a claim must be considered in judging the patentability, *In re Wilson*, 424, F.2d, 1382, 1385, 165 USPQ 494, 496, (CCPA 1970), Applicant respectfully submits that the Examiner has failed to establish a *prima facie* case of obviousness with respect to Claims 8 and 32 or Claims 8 and 31. It is respectfully submitted that for at least the reasons set forth above, Booth et al. in view of Kanevsky et al. fail to render obvious the present invention as recited in Claims 8 and 32 or 8 and 31, contrary to that contended by the Examiner. Applicant respectfully requests reconsideration in light of the remarks above and withdrawal of the rejections of Claims 8 and 31 or Claims 8 and Claim 32, depending on which claims the Examiner originally intended to reject.

Claim 38 is rejected under 35 U.S.C. 103(a) as being anticipated by Booth et al. in view of Priest et al. (USP 5,808,919). Applicant respectfully traverses this rejection also.

Claim 38 ultimately depends from and includes all of the limitations of Claim 32. As submitted above, Booth et al. fail to disclose or suggest the invention claimed in Claim 32. As such, for at least the reasons discussed hereinabove for Claim 32, Booth et al. fail to disclose or suggest that claimed in Claim 38. Unless Priest et al. disclose that which is lacking in the teachings of Booth et al., it is irrelevant what else Priest et al. do teach. In particular, neither Priest et al. nor Booth et al., whether considered separately or together, disclose or suggest, explicitly or implicitly, using *a probability of one or both of a correct diagnosis and an incorrect diagnosis by the test suite* (emphasis added) as recited in Claim 32 from which Claim 38 ultimately depends. Therefore, Booth et al. in view of Priest et al. fail to render unpatentable the invention in Applicant's Claim 38.

Applicant respectfully requests reconsideration in light of the remarks above and withdrawal of the rejection of Claim 38.

The Examiner objected to Claims 9 and 12-30 as being dependent from rejected base Claims 1 and 11, respectively. However, the Examiner observed that Claims 9 and 12-30 would be allowable if rewritten in independent form including the limitations of the base claims and any intervening claims.

Applicant appreciates the Examiner's acknowledgement of allowable subject matter in Claims 9 and 12-30. However, Applicant has identified above the reasons why base Claims 1 and 11 are allowable over the cited art. Therefore, it is submitted that Claims 9 and 12-30 are dependent from allowable base claims and are therefore allowable as originally written. Reconsideration and withdrawal of the objection of Claims 9 and 12-30 are respectfully requested.

In summary, Claims 1-38 are pending. Claims 1-8, 10, 11 and 31-38 were rejected. Claims 9 and 12-30 were objected to. Applicant has amended Claims 1 and 32. Amended Claims 1 and 32 along with original Claims 2-10, 11-31, and 33-38 are in condition for allowance. It is respectfully requested that Claims 1-38 be allowed, and that the application be passed to issue at an early date.

Should the Examiner have any questions regarding the above, please contact the undersigned, J. Michael Johnson, telephone number (775) 849-3085, or Robert T. Martin, Attorney for Applicant, Registration No. 32,426 at Agilent Technologies, Inc., telephone number (650) 485-7533.

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8/29/03

J. Michael Johnson **Date**

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